fees are believed to be due at this time, and the amendment is believed to be in condition for entry.

IN THE CLAIMS

Please add claims 21-33 as indicated in the attached claim sheets.

REMARKS

Claims 1, 3, 6, 9-16, and 21-33 are pending in the application. Claims 1, 3, 6, and 9-16 are allowed. New claims 21-33 include limitations similar to the allowed claims, including an "angle spray nozzle." Thus, the new claims are also believed to be in condition for allowance, and a new Notice of Allowance is requested.

Respectfully submitted,
Perkins Coie LLP

Date: June 5, 2003

Kenneth H. Ohriner
Registration No. 31,646

Correspondence Address:

Perkins Coie LLP
Patent – LA
P.O. Box 1208
Seattle, WA 98111-1208
Phone: (310) 788-9900
Fax: (310) 788-3399

COMPLETE SET OF PENDING CLAIMS

1. (Original) A cleaning system for cleaning boxes used for moving and storing semiconductor wafers, comprising:

an enclosure;

a rotor rotatably supported within the enclosure, with the rotor having box positions for holding a box;

a plurality of spray manifolds positioned to spray a cleaning or rinsing fluid towards the rotor, with at least one of the spray manifolds having a plurality of straight spray nozzles, and also having at least one angle spray nozzle.

2. (Cancelled)

3. (Previously Amended) The cleaning system of claim 10 where the angle is from 30-60 degrees.

4-5. (Cancelled)

6. (Previously Amended) A method for cleaning five sided boxes used for carrying and storing semiconductor wafers, comprising the steps of:

placing the boxes in or on a rotor with an open side of the box facing radially outwardly and away from a center of the rotor;

spinning the rotor holding the boxes;

spraying a first spray of a cleaning liquid towards the center or spin axis of the rotor; and

spraying a second spray of the cleaning liquid at an angle relative to the first spray.

7-8. (Cancelled)

9. (Previously Amended) The method of claim 6 where the center axis of the first spray is aimed at the center of the rotor, and the centerline of the second spray is aimed at an angle to the first spray, so that the second spray sprays a pattern of liquid in a direction towards or opposite to the spin direction of the rotor.

10. (Previously Added) A cleaning system for cleaning boxes used for moving and storing semiconductor wafers, comprising:

an enclosure;

a rotor rotatably supported within the enclosure, with the rotor having box positions for holding a box;

a plurality of spray manifolds positioned to spray a cleaning or rinsing fluid towards the rotor, with at least one of the spray manifolds having a plurality of straight spray nozzles, and also having at least one angle spray nozzle, wherein the straight spray nozzles spray in a pattern having a horizontal central axis, and the angle spray nozzle sprays in a pattern having a central axis extending upwardly or downwardly at an angle relative to the horizontal central axis.

11. (Previously Added) A cleaning system for cleaning boxes used for moving and storing semiconductor wafers, comprising:

an enclosure;

a rotor rotatably supported within the enclosure, with the rotor having box positions for holding a box;

a plurality of spray manifolds positioned to spray a cleaning or rinsing fluid towards the rotor, with at least one of the spray manifolds having a plurality of straight spray nozzles, and also having at least one angle spray nozzle, wherein the angle spray nozzle is oriented to spray in a pattern having a central axis directed opposite to the direction of rotation of the rotor.

12. (Previously Added) A cleaning system for cleaning boxes used for moving and storing semiconductor wafers, comprising:

an enclosure;

a rotor rotatably supported within the enclosure, with the rotor having box positions for holding a box;

a plurality of spray manifolds positioned to spray a cleaning or rinsing fluid towards the rotor, with at least one of the spray manifolds having a plurality of straight spray nozzles and two angle nozzles separated by at least two straight spray nozzles.

13. (Previously Added) A method for cleaning five sided boxes used for carrying and storing semiconductor wafers, comprising the steps of:

placing the boxes in or on a rotor with an open side of the box facing radially outwardly and away from a center of the rotor;

spinning the rotor holding the boxes;

spraying a first spray of a cleaning liquid towards the center or spin axis of the rotor; and

spraying a second spray of the cleaning liquid at an angle relative to the first spray;

where the first spray is sprayed in a pattern having a centerline or center axis which is horizontal, and where the second spray is also sprayed in a pattern having a centerline which is horizontal.

14. (Previously Added) A method for cleaning five sided boxes used for carrying and storing semiconductor wafers, comprising the steps of:

placing the boxes in or on a rotor with an open side of the box facing radially outwardly and away from a center of the rotor;

spinning the rotor holding the boxes;

spraying a first spray of a cleaning liquid towards the center or spin axis of the rotor; and

spraying a second spray of the cleaning liquid at an angle relative to the first spray, with the first spray oriented horizontally and the second spray oriented upwardly or downwardly at an angle relative to the first spray.

15. (Previously Added) A cleaning system for cleaning boxes used for moving and storing semiconductor wafers, comprising:

an enclosure;

a rotor rotatably supported within the enclosure, with the rotor having box positions for holding a box;

a plurality of spray manifolds positioned to spray a cleaning or rinsing fluid towards the rotor, with at least one of the spray manifolds having one or more first spray nozzles, and also having one or more second spray nozzles, with the second spray nozzles at an angle of 10-80 degrees to the first spray nozzles.

16. (Previously Added) A method for cleaning boxes used for carrying and storing semiconductor wafers, comprising the steps of:

placing the boxes in or on a rotor;

spinning the rotor holding the boxes;

spraying a first spray of a liquid from a first set of nozzles on a manifold in a first direction towards the boxes; and

spraying a second spray of the liquid from a second set of nozzles on the manifold in a second direction different from the first direction.

17-20. (Cancelled)

21. (New) A cleaning system for cleaning boxes used for holding wafers, comprising:

an enclosure;

a rotor within the enclosure for holding boxes;

a plurality of spray manifolds positioned to spray fluid towards the rotor, wherein at least one of the spray manifolds includes one or more angle spray nozzles.

22. (New) The cleaning system of claim 21 wherein the at least one spray manifold includes a plurality of angle spray nozzles, with each of the angle spray nozzles oriented at the same angle.

23. (New) The cleaning system of claim 21 wherein the at least one spray manifold includes at least two angle spray nozzles oriented at different angles.

24. (New) The cleaning system of claim 21 wherein the angle spray nozzle is oriented to spray fluid in a pattern having a central axis extending upwardly or downwardly relative to a horizontal axis.

25. (New) The cleaning system of claim 21 wherein the angle spray nozzle is oriented to spray fluid in a pattern having a central axis directed opposite to a direction of rotation of the rotor.

26. (New) The cleaning system of claim 21 wherein at least one of the spray manifolds includes a straight spray nozzle.

Sub E1

27. (New) The cleaning system of claim 21 wherein the at least one spray manifold has two or more straight spray nozzles between two angle spray nozzles.

28. (New) A cleaning system for cleaning boxes used for holding wafers, comprising:

an enclosure;

a rotor within the enclosure, with the rotor having a box position for holding a box; and

E2

spray means for spraying a cleaning or rinsing fluid towards the rotor, with the spray means including an angle spray nozzle.

29. (New) The cleaning system of claim 28 wherein the spray means includes a straight spray nozzle.

30. (New) A cleaning system for cleaning boxes used for holding wafers, comprising:

an enclosure;

a rotor within the enclosure, for holding boxes;

a plurality of spray nozzles positioned to spray fluid towards the rotor, with at least one of the spray nozzles comprising an angle spray nozzle.

Sub F1

31. (New) The cleaning system of claim 30 wherein at least one of the spray nozzles comprises a straight spray nozzle.

32. (New) The cleaning system of claim 30 wherein the angle spray nozzle is oriented to spray fluid in a pattern having a central axis extending upwardly or downwardly relative to a horizontal axis.

E2

33. (New) The cleaning system of claim 30 wherein the angle spray nozzle is oriented to spray fluid in a pattern having a central axis directed opposite to a direction of rotation of the rotor.